



# MONTHLY WATER INVENTORY REPORT FOR OHIO

January 1999

<http://www.dnr.state.oh.us/odnr/water/pubs/newsltrs/mwirmain.html>

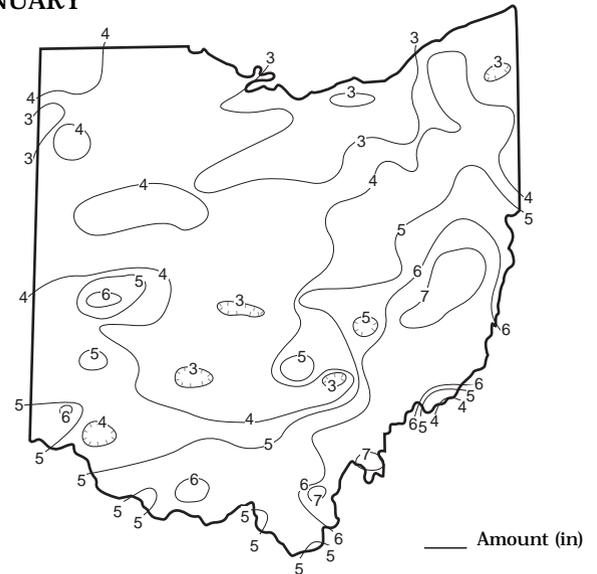
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Hydrologist  
Water Inventory Unit

**PRECIPITATION** during January was above normal throughout Ohio with only a few locations near the Lake Erie coastline in north-central Ohio receiving below-normal precipitation. The state average was 4.28 inches, 1.52 inches above normal. Regional averages ranged from 5.48 inches, 2.51 inches above normal, for the Southeast Region to 2.96 inches, 0.66 inch above normal, for the North Central Region. Patriot (Gallia County) reported the greatest amount of precipitation for the month, 7.50 inches. A few other locations in extreme southeastern and east-central Ohio also reported more than 7 inches of precipitation for the month. Westlake (Cuyahoga County) reported the least amount of January precipitation, 2.07 inches; Florence (Erie County) reported 2.08 inches.

January precipitation occurred in nearly every form imaginable, generally falling as snow and/or a wintry mix during the first half of the month and as rain during the second half. Weekly passages of strong storm systems produced measurable precipitation on a large majority of the days during the first three weeks of the month. Snowfall was above normal statewide. The new year started with a bang as a strong storm system moved through the Great Lakes region over the long New Year's Eve weekend. Many areas in the northwestern half of Ohio saw significant accumulations of snow on January 2. Some areas, especially in the southeastern half of the state, saw the precipitation change to a wintry mix of sleet and freezing rain. Precipitation amounts (liquid) ranged from around 0.5 inch to more than 1.5 inches from this storm period. After the main storm system passed, snow showers continued on and off statewide for the next several days contributing to additional travel delays and school closings. The next major storm system passed near the state during January 7-8. Generally, the precipitation fell as snow in northwestern Ohio and as a wintry mix throughout the rest of the state. Some areas in the southern half of the state received more than 1 inch of precipitation (liquid) during this storm. Light snow and rain showers once again continued on and off statewide during the next several days causing additional school closings and travel problems. The next storm system passed through the state during January 13-15 dumping snow and mixed precipitation throughout Ohio. Accumulations ranged from around 0.5 inch to more than 1 inch (liquid) with the greatest amounts generally falling in eastern Ohio.

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## PRECIPITATION JANUARY

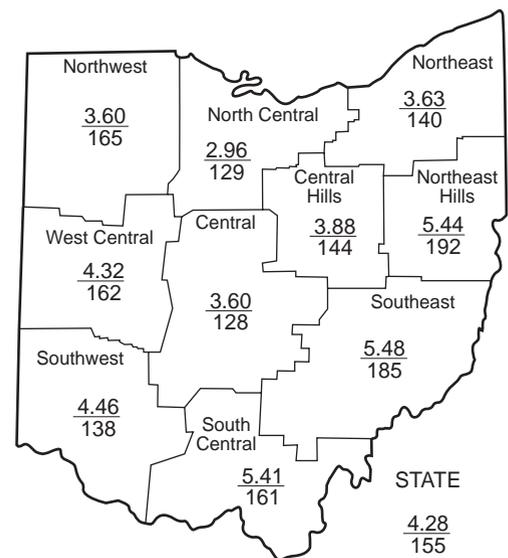


## PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.)					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+1.42	-0.93	+2.06	+4.68	+11.67	+1.2
North Central	+0.66	-1.26	-1.00	+3.22	+9.07	-0.2
Northeast	+1.04	-0.50	-0.87	-1.26	+0.62	0.0
West Central	+1.65	-0.11	-1.19	+4.05	+2.95	+0.7
Central	+0.79	-0.23	-1.76	+1.52	+2.76	+0.3
Central Hills	+1.18	+0.13	+0.81	+3.44	+3.39	+0.7
Northeast Hills	+2.61	+1.19	+2.70	+5.53	+5.38	+1.2
Southwest	+1.23	+0.29	-2.25	+4.91	+4.19	+0.4
South Central	+2.04	+0.79	-2.58	+4.32	+6.11	+1.3
Southeast	+2.51	+0.89	-0.31	+5.26	+8.75	+0.6
State	+1.52	+0.03	-0.45	+3.56	+5.48	+0.6

\*Above +4 = Extreme Moist Spell  
3.0 To 3.9 = Very Moist Spell  
2.0 To 2.9 = Unusual Moist Spell  
1.0 To 1.9 = Moist Spell  
0.5 To 0.9 = Incipient Moist Spell  
0.4 To 0.4 = Near Normal

-0.5 To -0.9 = Incipient Drought  
-1.0 To -1.9 = Mild Drought  
-2.0 To -2.9 = Moderate Drought  
-3.0 To -3.9 = Severe Drought  
Below -4.0 = Extreme Drought



Average (in)  
Percent of normal

# MEAN STREAM DISCHARGE

River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	This Month		
				% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	1,694	161	48	40	60
Great Miami River at Hamilton	3,630	7,931	267	87	93	124
Huron River at Milan	371	848	239	134	191	153
Killbuck Creek at Killbuck	464	1,061	281	132	141	106
Little Beaver Creek near East Liverpool	496	1,728	348	169	163	112
Maumee River at Waterville	6,330	13,571	431	114	143	126
Muskingum River at McConnelsville	7,422	17,540	222	126	125	121
Scioto River near Prospect	567	1,101	326	107	107	98
Scioto River at Higby	5,131	9,537	256	105	106	119
Stillwater River at Pleasant Hill	503	1,351	374	119	117	119

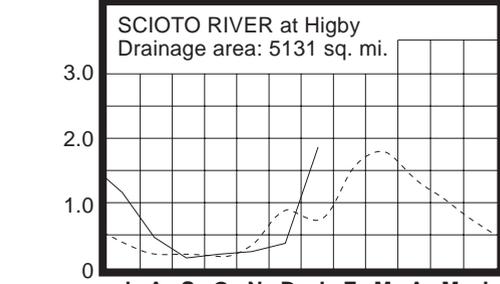
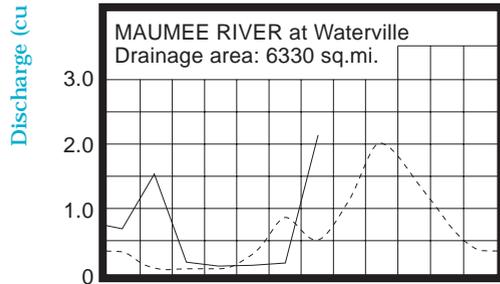
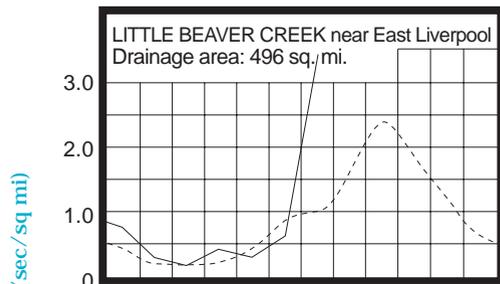
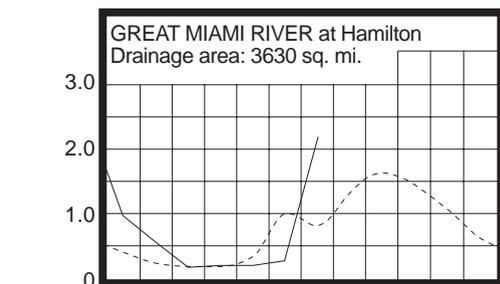
**STREAMFLOW** during January was noticeably above normal throughout the state. Flows were high enough to be considered excessive in all but extreme northeastern Ohio. January flows were considerably greater than the below-normal flows recorded during December.

Flows at the beginning of the month were below normal throughout most of the state. Lowest flows for January occurred during the first day or two in most basins. A few exceptions occurred in some drainage basins in the northeastern quadrant of the state which had slightly lower flows around January 11. Flows increased for several days after these lows as a wintery mix of precipitation fell during the first week of the month, but soon began to decline as temperatures dropped and the precipitation remained frozen on the ground. Flows increased again following an additional wintery mix of precipitation that fell during January 13-15. This precipitation, coupled with the "January thaw" which started after the middle of the month, brought streams to bank full throughout the state. Some minor flooding occurred in low-lying areas, somewhat compounded locally by ice jams. The greatest flows for the month occurred during January 22-25 following widespread rain showers and thunderstorms. Moderate to severe flooding of small streams and low-lying areas occurred in many areas of the state. Tragically, two lives were lost in Fairfield County after the car in which they were riding drove into a swollen stream that had earlier washed away the road and culvert. Flows remained noticeably above normal at the end of the month throughout most of the state.

**RESERVOIR STORAGE** for water supply during January increased in both the Mahoning and Scioto river basins. Storage remained above normal in the Mahoning basin reservoirs and increased to above-normal seasonal levels in the Scioto basin reservoirs after several months of remaining at below-normal levels.

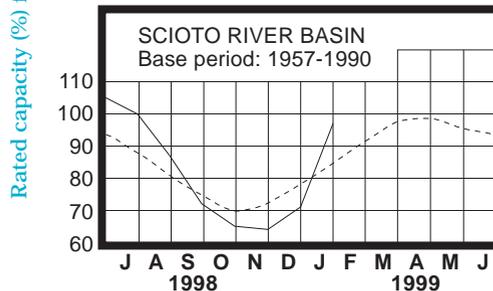
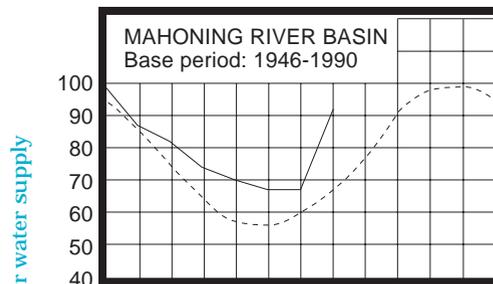
Reservoir storage at the end of January in the Mahoning basin index reservoirs was 92 percent of rated capacity for water supply compared with 67 percent for last month and 79 percent for January 1998. Month-end storage in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with 71 percent for last month and 97 percent for January 1998. Surface-water supplies are in a favorable position with continued improvement expected during the next several months.

## MEAN STREAM DISCHARGE



Base period for all streams: 1961-1990

## RESERVOIR STORAGE FOR WATER SUPPLY



## GROUND-WATER LEVELS

Based on daily lowest level in feet below land-surface datum

Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	16.31	-0.76	+2.40	-0.67
Fa-1	Jasper Mill, Fayette Co.	Limestone	9.21	-1.77	+1.72	-1.97
Fr-10	Columbus, Franklin Co.	Gravel	44.11	-0.50	+0.34	-1.38
H-1	Harrison, Hamilton Co.	Gravel	22.73	-0.60	+1.31	-0.02
Hn-2a	Dola, Hardin Co.	Dolomite	9.55	-1.35	-0.09	-3.02
Po-1	Windham, Portage Co.	Sandstone	21.77	-1.22	-0.10	-1.07
Tu-1	Strasburg, Tuscarawas Co.	Gravel	13.93	-1.00	+1.39	+1.29

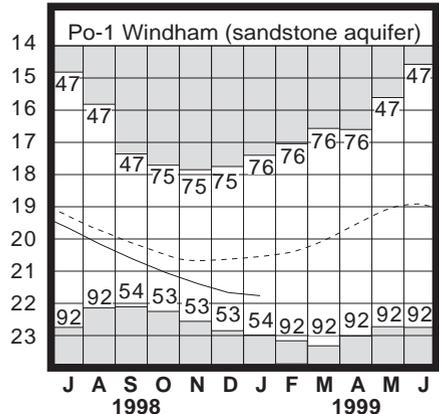
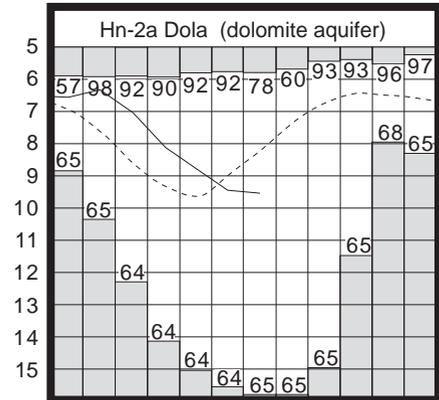
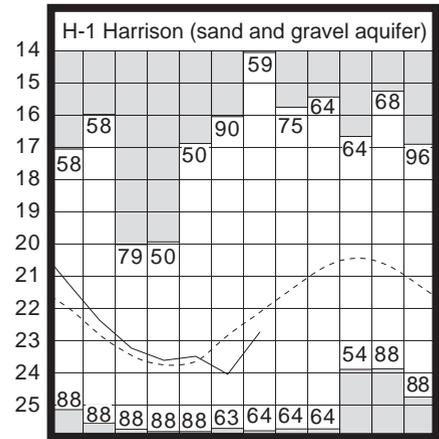
**GROUND WATER** levels during January showed net improvement in most aquifers throughout the state. A few exceptions were noted in consolidated aquifers where recharge was delayed and improvement began later in the month. Net changes from December's levels were greater than usually observed in most aquifers. Generally, ground water levels rose steadily throughout the month in most shallow aquifers with sharp rises noted during the last week of the month in aquifers along streams and rivers. In deeper aquifers, levels were much more stable during the first half of the month and then rose during the second half.

This is the first month in the 1999 water year where ground water levels have shown substantial improvement, however, levels remain below normal throughout the state. Current levels are also lower than they were a year ago in nearly all aquifers. The hydrologic and soil moisture conditions favorable for recharge have improved considerably since the middle of December. However, near-normal precipitation and other hydrologic conditions are needed during the next several months to sustain the improvement in ground-water storage that began this month. Water supply managers with ground water sources should continue to monitor their situation closely throughout the recharge season.

**LAKE ERIE** level continued its seasonal decline during January. The January mean level was 570.90 feet (IGLD-1985), 0.13 foot lower than last month's mean level and 0.30 foot above normal. This month's level is 2.07 feet lower than the January 1998 level and 1.70 feet above Low Water Datum.

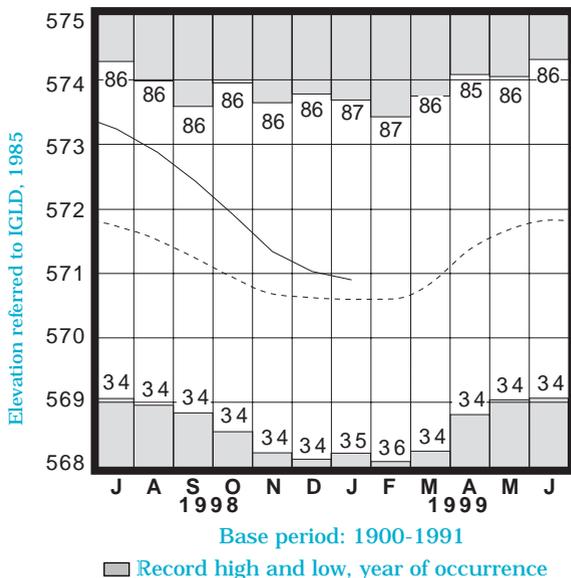
The level of Lake Erie has declined nearly 3 feet since the middle of 1998, a significant drop in water levels in the Great Lakes hydrologic system. The U.S. Army Corps of Engineers predicts that, based on the present condition of the Great Lakes basin and anticipated future weather conditions, the level of Lake Erie will range near normal for the foreseeable future. The level of Lake Erie has generally ranged at above-normal levels for the past 30 or so years. Record-high levels were established in the mid 1980s, surpassing the previous high levels set in the early 1970s. Levels again approached record-highs in 1997 and continued to range at notably high levels through mid 1998 before starting the aforementioned decline.

## GROUND-WATER LEVELS



Water level (ft below land surface)

## LAKE ERIE LEVELS at Fairport



Base periods: H-1, 1951-1990. Hn-2a, 1955-1990.

Po-1, 1947-1990 ■ Record high and low, year of occurrence

(continued from front page)

The long-awaited "January thaw" started just after mid-month. While the snow continued to melt, a few light showers passed through the state during January 17-18. Minor flooding of low-lying areas was reported. Stronger storms and rain showers moved across many areas of Ohio during January 21-22. Rain amounts ranged from around 0.5 inch to nearly 2 inches, with the largest amounts falling at scattered locations in southern and eastern Ohio. In addition, some areas in a narrow band from west-central up through north-central Ohio received as much as 3 inches of rain. Tragically, in Fairfield County heavy rain resulted in a flash flood that washed out a road and culvert which ultimately resulted in the deaths of two people who drove into the swollen creek. Some light showers continued on and off through January 25, followed by much needed drying during the last week of the month.

The 1999 calendar year is off to a good start as far as precipitation is concerned. Continued near-normal precipitation during the next several months will benefit water supplies and agriculture.

Precipitation for the 1999 water year is above normal in the southern two-thirds of the state and below normal in the northern third. The state average is 11.04 inches, 0.70 inch above normal. Regional averages range from 13.23 inches, 2.69 inches above normal, for the Northeast Hills Region to 7.60 inches, 1.55 inches below normal, for the North Central Region.

### SUMMARY

Precipitation was above normal throughout nearly the entire state. Streamflow was excessive statewide. Reservoir storage increased and was at above-normal seasonal levels. Ground water storage improved in most aquifers, but levels remain below normal across the state. Lake Erie continued its seasonal decline falling another 0.13 foot, but still remained above the long-term December average by 0.30 foot.

### NOTES AND COMMENTS

#### New Director at ODNR

Samuel W. Speck was appointed by Governor Bob Taft recently as the new Director of the Ohio Department of Natural Resources (ODNR). Dr. Speck follows Don Anderson who served as the ODNR Director for the past four years.

Sam Speck comes to ODNR with outstanding administrative experience as well as a long list of accomplishments during his many years of working in both the public and private sectors. Since 1988, he has been president of Muskingum College. During his tenure, Muskingum College completed several programs, reached many milestones and was highly rated by many national publications. Prior to his presidency at Muskingum College, he served in the Ohio House of Representatives from 1971-76 and the Ohio Senate from 1977-83. As a member of the Ohio General Assembly, he was an advocate for natural resource issues, authoring or sponsoring several key pieces of legislation. He was the primary author of Ohio's Strip Mine Reclamation Act and sponsored legislation to create the ODNR Divisions of Forestry and Natural Areas and Preserves. He also sponsored legislation to permit reciprocity agreements with other states for hunting and trapping licenses.

In addition to his state government experience, Sam Speck also served as an associate director of the Federal Emergency Management Agency during the Reagan administration. He has chaired or served as a member of many boards, commissions and consortiums. This long and impressive diverse list includes the Board of the International Center for the Preservation of Wildlife ("The Wilds"), a wildlife conservation, research and education center in eastern Ohio.

Dr. Speck is originally from Canton. He is a graduate of Muskingum College and received his Ph. D. in government from Harvard University.

## ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:

*U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service: The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.*

Streamflow and reservoir storage data:

*U.S. Geological Survey, Water Resources Division.*

Lake Erie level data:

*U.S. Army Corps of Engineers, Detroit District.*

Palmer Drought Severity Index:

*U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.*



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Donald C. Anderson

Director

Chief

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